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Atty Docket No.: JCLA9793

Serial No.: 10/660,139

**REMARKS****Present Status of the Application**

This is a full and timely response to the outstanding final Office Action mailed on March 29, 2005. The Office Action has rejected claim 1 under 35 U.S.C. 112, 2<sup>nd</sup> paragraph as being indefinite. The Office Action has also rejected claims 1, 3-5 under 35 U.S.C. 103(a) as being unpatentable over Nova et al. (US 5,874,214) in view of Cozzette et al. (US 5,063,081). The Office Action has further rejected claims 3-4 as being unpatentable over Nova in view of Cozzette and further in view of Wu et al. (US 5,922,161).

Claims 1, 3-5 remain pending of which claim 1 has been amended to more accurately describe the invention. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

Applicant has most respectfully considered the remarks set forth in this Office Action. Regarding the obvious rejections, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the presently pending claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

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**Response to 35 U.S.C. 112, 2<sup>nd</sup> paragraph rejection**

*Claim 1 is rejected under 35 U.S.C. 112, 2<sup>nd</sup> paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

More specifically, claim 1 is rejected because the phrase "the aminated surface of the silicon dioxide layer" in line 8 is vague and confusing since lines 4-6 of the instant claim indicate that the silicon dioxide layer has been modified into an aminated surface and it is confusing as to how the aminated surface is on the silicon dioxide layer.

In response thereto, Applicant has amended claim 1 to read "...reacting a surface of the silicon dioxide layer with 3-aminopropyltriethoxysilane.." to provide better clarity to claim 1. Reconsideration and withdrawal of the rejection are respectfully requested.

**Response to 35 U.S.C. 103 rejection**

*Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nova (US-5,874,214, hereinafter Nova) in view of Cozzette et al. (US-5,063,081, hereinafter Cozzette.).*

The PTO can satisfy its burden of establishing a prima facie case of obviousness only by showing the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Further, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. See M.P.E.P. § 2143, 8<sup>th</sup>, February 2003. "Moreover, the question is not simply whether the prior art 'teaches'

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the particular element of the invention, but whether it would 'suggest the desirability, and thus the obvious of making the combination.'" *ALCO Standard Corp. v. Tennessee Valley Authority*, 808 F.2d 1490, 1498, 1 U.S.P.Q. 2d 1337, 1343 (Fed. Cir. 1986).

Applicant respectfully disagrees with the Office's assertion that Nova in view of Cozzette shows most aspects of the instant invention. Accordingly, Applicant believes Nova in view of Cozzette is legally deficient for the purpose of rendering claim 1 unpatentable.

The present invention teaches, among other things, providing a micro-carrier labeled with an identification code; covering a surface of the micro-carrier with a silicon dioxide layer and reacting the surface of the silicon dioxide layer with 3-aminopropyltriethoxysilane to modify the surface of the silicon dioxide layer into an aminated surface; and synthesizing a peptide with a specific amino acid sequence on the aminated surface of the silicon dioxide layer. In other words, the silicon dioxide layer on the microcarrier is chemically reacted with 3-aminopropyltriethoxysilane to convert the surface of the silicon dioxide layer into an aminated surface. Thereafter, the amine group on the carrier is chemically attached to an amino acid via a peptide bond with the carboxyl end of the amino acid. After several repetitions of the synthesis step, a plurality of amino acids can be sequentially attached to the micro-carrier to form a peptide that has a specific amino acid sequence. Accordingly, the micro-carrier with the peptide of a specific amino acid sequence can be used to identify the test-pending material.

Nova teaches, in very general terms, the concept of immobilizing biomolecules onto solid or liquid supports. As recognized by the Office, Nova is completely silent about covering the surface of the micro-carrier with a silicon dioxide layer and reacting the silicon dioxide layer

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with 3-aminopropyltriethoxysilane. In addition, Nova also fails to teach or suggest synthesizing a peptide with a specific amino acid sequence on the aminated surface of the silicon dioxide layer. However, the Office contends that Cozzette cures the specific deficiencies of Nova. Applicant respectfully disagrees.

Cozzette substantially teaches a substrate (20), a non-conductive layer of silicon dioxide (15) disposed on the substrate (15), a patterned titanium metal structures (10) disposed on the silicon dioxide (15), an iridium electrocatalyst layer (5) disposed on the patterned titanium metal structures (10), a permselective silane layer (6) disposed on the iridium electrocatalyst layer (5) and a biolayer layer (7) disposed on a portion of the permselective silane layer (6) which is formed above the iridium electrocatalyst layer (5). First of all, although a portion of the permselective silane layer (6) is disposed over the silicon dioxide layer (15), the permselective silane layer (6) is mainly formed by means of physical phenomena, such as coating or dispensing on the titanium metal layer (col. 28, ln. 9-11). There is no teaching or suggestion in Cozzette that the permselective silane chemically reacts with the silicon dioxide, which requires a shaking contact between silane and silicon dioxide for an extended period of time as disclosed in the instant case. Further, in addition to promoting adhesion of the biolayer (7) to the underlying electrode surface, the permselective silane mainly functions as a molecular weight-sensitive transmissive film for excluding certain molecules from entering and diffusing through such a film (col. 14 ln. 49 to col. 15, ln. 67). Therefore, the permselective silane of Cozzette is directed to dispose between the biolayer (7) and the underlying electrode surface instead of on

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the silicon dioxide layer. Accordingly, the Office's assertion that Cozzette provides the teaching or suggestion of modifying a silicon dioxide layer with 3-aminopropyl-triethoxysilane is unsubstantiated.

Second of all, the Office argues that the biolayer (7) of Cozzette in Figure 2 can include polypeptides, which indicates that the 3-aminopropyltriethoxysilane modified silicon dioxide layer is capable of retaining polypeptides (pg 8-9 of the OA). However, in Figure 2, Cozzette teaches forming the biolayer (7) over the part of the permselective silane (6) that is disposed above the iridium electrocatalyst layer (5) and not above the silicon dioxide layer (15). There is no contact between the biolayer (7) and the silicon dioxide layer (15). Therefore, even if the silicon dioxide layer (15) of Cozzette is modified with 3-aminopropyltriethoxysilane and even if the biolayer (7) of Cozzette is capable of retaining polypeptide, Cozzette still fails to teach synthesizing a peptide with a specific amino acid sequence on the aminated surface of the silicon dioxide layer because the biolayer (7) of Cozzette and bioactive molecules therein are not chemically attached to or on the silane-modified surface of the silicon dioxide layer, let alone the fact the silicon dioxide layer (15) of Cozzette is not modified with 3-aminopropyltriethoxysilane.

Accordingly, in view of the foregoing reasons, even if there were motivation to combine Nova with Cozzette, the combination still fails to teach or suggest the claimed invention. Accordingly, the withdrawal of the rejection and the allowance of claim 1 are earnestly requested. Because claim 5 is dependent upon claim 1, respectively, the same reasons as discussed above also apply to this claim.

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*The Office Action rejected claims 3-4 under 35 USC 103(a) as being unpatentable over Nova in view of Cozzette and further in view of Wu et al. (US-5,922,161, hereinafter Wu).*

Applicants respectfully disagree and would like to point out that even though the Examiner relied upon Wu for disclosing the polymeric materials, still Wu cannot cure the specific deficiencies of Nova for at least the reasons discussed above. Therefore, claims 3-4 also patently define over Nova and Wu for at least the same reasons discussed above. Reconsideration and withdrawal of the above rejections is respectfully requested.

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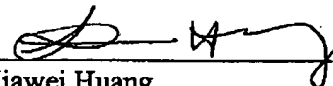
**CONCLUSION**

For at least the foregoing reasons, it is believed that the presently pending claims 1, 3-5 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Date: 6/29/2005

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